CLAIMS:

Claim 1 An RFID device comprising

a substrate;

an antenna means on said substrate;

at least one silicon chip; and

a connection means for electrically connecting said antenna means and said silicon chip.

Claim 2. The RFID device of claim 1 wherein said connection means is comprised of an electrically conductive adhesive.

Claim 3. The RFID device of claim 1 wherein said connection means is comprised of:

a first coil means connected to said antenna means and

a second coil means connected to said silicon chip.

wherein said first coil means and said second coil means are proximally located thereby facilitating electrical communication.

Claim 4. The RFID device of claim 3 wherein said first coil means is comprised of at least two loops wherein each of said at least two loops is separated by a layer of dielectric.

Claim 5. The RFID device of claim 4 wherein said first coil means has at least a first and a second loop each loop having two endpoints,

wherein a first loop is located on said substrate and

a second loop is located on a dielectric layer located above said first loop,

wherein one endpoint of said first loop is connected to said antenna means and the second endpoint of said first loop is connected to the first endpoint of said second loop through a hole in the dielectric layer and

wherein the second endpoint of said second loop is connected to said antenna means through an opening in the dielectric layer.

Claim 6. The RFID device of claim 3 wherein said first coil means is comprised of at least two loops wherein each of said at least two loops is separated by a layer of dielectric.

Claim 7. The RFID device of claim 3 wherein said second coil means is located on said silicon chip.

Claim 8. The RFID device of claim 1 wherein said antenna means is printed on said substrate.

Claim 9. The RFID device of claim 8 wherein printing is by electrostatic or inkjet printing methods.

Claim 10. The RFID device of claim 3 wherein said connection means is printed by electrostatic or inkjet printing methods.

Claim 11. The RFID device of claim 7 wherein said second coil means is printed by electrostatic or inkjet printing methods.

Claim 12. The RFID device of claim 1 further comprising a protective coating.

Claim 13. A process for the manufacture of RFID devices consisting of the following:

a. Electrostatic printing of a metal toner on a coated substrate
b. The drying of this metal toner image
c. The mechanical placement of a silicon die on this dried, printed metal toner image
d. The heating of this assembly to a suitable temperature causing a sintering of the metal toner particles together and a sintering of them to the electrode pads of the silicon die
e. The overcoat of the die/substrate with a protective coat.

Claim 14. A process in which the metal toner is made of silver.

Claim 15. A process in which the substrate is PET film or paper.

Claim 16. A process in which the substrate is coated with an adhesion/sintering layer that promotes both sintering of the metal particles and their adhesion to the substrates.

Claim 17. A process in which this coating is chosen from Saran ™ resins of Dow Chemical.

Claim 18. A process for the manufacture of rf-ID devices in which

a. Metal toner is printed on a suitable substrate in a suitable pattern
b. The pattern in the area of silicon chip mounting is configured into a single or multui-turn electro-magnetic coil.
c. This pattern is suitably processed into a conductive metal pattern
d. The substrate is coated with a suitable adhesive layer.
e. A silicon die possessing an electromagnetic coil pattern of metal around its periphery is placed and aligned to the metal toner coil pattern of the substrate.
f. The bonding reaction between die and adhesive coated substrate is completed by suitable means.

Claim 19. The process of claim in which the die has been "thinned" to a value below 50 microns.

Claim 20. The process of claim 6 where the substrate thickness is less than 50 microns.

Claim 21. The process of claim where the overall thickness of the final part is between 10 and 100 microns.